

## Ken Takeuchi et al. - U.S. Serial No. 10/073,999

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1 - 46 (Cancelled)

47. (Currently Amended) A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;  
a second memory cell section including a second memory cell;  
a first signal line connected to said first memory cell section;  
a second signal line connected to said second memory cell section; and  
a data circuit connected to one ends of said first and second signal lines, and including a capacitor and a latch circuit;

wherein first program / read data of said first memory cell is temporarily stored in said data circuit, and second program / read data of said second memory cell is held by said second signal line.

48. (Currently Amended) A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;  
a second memory cell section including a second memory cell;  
a first signal line connected to said first memory cell section;  
a second signal line connected to said second memory cell section; and  
a data circuit connected to one ends of said first and second signal lines, and including a capacitor and a latch circuit;

wherein

said first and second memory cells are programmed substantially simultaneously; and

while a program voltage is supplied to said second memory cell, program data of said second

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CI cont'd  
memory cell is held by said second signal line, and while said program voltage is supplied to said second memory cell, a verify read operation to verify whether said first memory cell has been programmed sufficiently, is carried out by said data circuit.

49. (Currently Amended) A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;

a second memory cell section including a second memory cell;

a first signal line connected to said first memory cell section;

a second signal line connected to said second memory cell section; and

a data circuit connected to one ends of said first and second signal lines, and including a capacitor and a latch circuit;

wherein

said first and second memory cells are programmed substantially simultaneously;

while a program voltage is supplied to said second memory cell, program data of said second memory cell is held by said second signal line, and while said program voltage is supplied to said second memory cell, a verify read operation to verify whether said first memory cell has been programmed sufficiently, is carried out by said data circuit; and

while said program voltage is supplied to said first memory cell, program data of said first memory cell is held by said first signal line, and while said program voltage is supplied to said first memory cell, a verify read operation to verify whether said second memory cell has been programmed sufficiently, is carried out by said data circuit.

50. (Currently Amended) A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;

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C' confd  
B1  
C' confd  
a second memory cell section including a second memory cell;  
a first signal line connected to said first memory cell section;  
a second signal line connected to said second memory cell section; and  
a data circuit connected to one ends of said first and second signal lines, and including a capacitor and a latch circuit;

wherein

said first and second memory cells are programmed substantially simultaneously;

while a program voltage is supplied to said second memory cell, program data of said second memory cell is held by said second signal line, and while said program voltage is supplied to said second memory cell, the program data of said first memory cell held by said first signal line is transferred to said data circuit and a verify read operation to verify whether said first memory cell has been programmed sufficiently, is carried out by said data circuit;

while said program voltage is supplied to said first memory cell, program data of said first memory cell is held by said first signal line, and while said program voltage is supplied to said first memory cell, the program of data said second memory cell held by said second signal line is transferred to said data circuit and a verify read operation to verify whether said second memory cell has been programmed sufficiently, is carried out by said data circuit.

31. (Original) The nonvolatile semiconductor memory according to claim 47,

wherein

said first memory cell and said second memory cell are connected to different word lines.

32. (Original) The nonvolatile semiconductor memory according to claim 48,

wherein

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*C1 cont'd*

said first memory cell and said second memory cell are connected to different word lines.

*6*  
~~53~~. (Original) The nonvolatile semiconductor memory according to claim ~~49~~<sup>5</sup>,

wherein

said first memory cell and said second memory cell are connected to different word lines.

*8*  
~~54~~. (Original) The nonvolatile semiconductor memory according to claim ~~50~~<sup>7</sup>,

wherein

said first memory cell and said second memory cell are connected to different word lines.

*9*  
~~55~~. (Currently Amended) A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;

a first signal line connected to said first memory cell section;

a second signal line; and

a data circuit connected to one ends of said first and second signal lines, and including a capacitor and a latch circuit, said data circuit temporarily storing program / read data;

signal lines, said data circuit temporarily storing program / read data;

wherein

said program / read data of said first memory cell is held by said second signal line.

*10*  
~~56~~. (Currently Amended) A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;

a first signal line connected to said first memory cell section;

a second signal line; and

a data circuit connected to one ends of said first and second signal lines, and including a capacitor and a latch circuit, said data circuit temporarily storing program / read data;

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contd

wherein

while a program voltage is supplied to said first memory cell, program data of said first memory cell is held by at least one of said first and second signal lines;

after said program voltage is supplied to said first memory cell, said data circuit is electrically connected to said second signal line and the program data of said first memory cell held by said second signal line is transferred to said data circuit; and

a verify read operation to verify whether said first memory cell has been sufficiently programmed, is carried out using said program data stored in said data circuit.

17  
51. (Currently Amended). A nonvolatile semiconductor memory comprising:

a first memory cell section including a first memory cell;

a first signal line connected to said first memory cell section;

a second signal line;

a third memory cell section including a third memory cell;

a third signal line connected to said third memory cell section;

a fourth signal line; and

a data circuit connected to one ends of said first, second, third and fourth signal lines, and including a capacitor and a latch circuit, said data circuit temporarily storing program/read data of at least one of said first and third memory cells;

wherein

said first and third memory cells are programmed substantially simultaneously, program data of said first memory cell is held by at least one of said first and second signal lines, and program data of said third memory cell is held by at least one of said third and fourth signal lines while a program

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*C1*  
*Cont'd*

voltage is supplied to said first and second memory cells;

a verify read operation to verify whether said first memory cell has been sufficiently programmed, is carried out by said data circuit, and program data of said third memory cell is held by said fourth signal line while conducting the verify read operation of said first memory cell; and

*Cont'd B1*

said data circuit and said fourth signal line are electrically connected to each other, after the program data of said third memory cell held by said fourth signal line is transferred to said data circuit, a verify read operation to verify whether said third memory cell has been sufficiently programmed, is carried out using the program data of said third memory cell held by said data circuit, and while conducting a verify read operation of said third memory cell, the program data of said first memory cell is held by said second signal line.

<sup>18</sup>  
~~58.~~ (Original) The nonvolatile semiconductor memory according to claim <sup>17</sup>~~57~~,  
wherein

said first and third memory cells are connected to a same word line.

<sup>10</sup>  
~~59.~~ (Original) The nonvolatile semiconductor memory according to claim <sup>9</sup>~~55~~,  
wherein

while said program / read data is held by said first or second signal line, a potential of a signal line adjacent to said first or second signal line is set at a fixed potential.

<sup>11</sup>  
~~60.~~ (Original) The nonvolatile semiconductor memory according to claim <sup>10</sup>~~59~~,  
wherein

said fixed potential is a ground potential or a power supply potential.

<sup>12</sup>  
~~61.~~ (Original) The nonvolatile semiconductor memory according to claim <sup>9</sup>~~55~~,  
wherein

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*C1*  
*cont'd*

said first and second signal lines are bit lines.

*14*  
*62.* (Original) The nonvolatile semiconductor memory according to claim *13* *56*,  
wherein

while said program / read data is held by said first or second signal line, a potential of a signal  
line adjacent to said first or second signal line is set at a fixed potential.

*15*  
*63.* (Original) The nonvolatile semiconductor memory according to claim *14* *62*,  
wherein

said fixed potential is a ground potential or a power supply potential.

*16*  
*64.* (Original) The nonvolatile semiconductor memory according to claim *13* *56*,  
wherein

said first and second signal lines are bit lines.

*19*  
*65.* (Original) The nonvolatile semiconductor memory according to claim *17* *57*,  
wherein

while said program / read data is held by said first, second, third or fourth signal line, a  
potential of a signal line adjacent to said first, second, third or fourth signal line is set at a fixed  
potential.

*20*  
*66.* (Previously Amended) The nonvolatile semiconductor memory according to  
claim *19* *65*, wherein said fixed potential is a ground potential or a power supply potential.

*21*  
*67.* (Previously Amended) The nonvolatile semiconductor memory according to  
claim *17* *57*, wherein said first, second, third and fourth signal lines are bit lines.

*68-81* (Cancelled)

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